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ABSTRACT

The paper provides an overview of a prelanguage program that was developed for a low functioning, 7 1/2-year-old congenitally deaf-blind child. It is explained that the program was based on principles and procedures as they related to operant behaviors, that reinforcement techniques were continually applied, and that a great deal of successive approximation or shaping was used. Steps in teaching the child prerequisite behaviors, motor imitations, meaning, sentencing, and fingerspelling are reviewed. A sample form for charting case data is included. (SBH)

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# A Prelanguage Program Developed For One Low Functioning Congenitally Deaf-Blind Child

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# A Prelanguage Program Developed For One Low Functioning Congenitally Deaf-Blind Child

When Sheri, who was totally blind and had a severe hearing loss, came to the classroom at Perkins School for the Blind in January of 1971, she was chronologically seven-and-one-half years old; she behaved as a low functioning child. Sheri was a head banger who averaged hitting herself nearly a thousand times a day. Her communication was nonlanguage in that she did not use any type of gesturing, signing, fingerspelling, or oral speech. When she was happy, she smiled; when she was upset, she threw a tantrum. Thus Sheri communicated with other people in the world. The diagnosticians at Perkins had classified Sheri's communication and language attempts as "emotional reactions."

Much remains to be learned regarding prelanguage and language development with nonlanguage, multiply-handicapped or, what we refer to as "clobbered" individuals. Yet my colleagues and I were able to develop a successful prelanguage program for Sheri.

All of the behavioral changes and formal learning that took place during the time that Sheri was in the classroom

were based on principles and procedures as they related to operant behaviors (behaviors governed and formed mainly on the basis of the consequences that follow behaviors).

In helping Sheri develop the multi-faceted class of behaviors called prelanguage and language development, we continually employed the principle and subprinciples of reinforcement (any act, item or event that follows a behavior that would tend to increase the probability that that behavior will be repeated again in the same or similar setting). With a child such as Sheri, who can neither see nor hear, you must use a great deal of successive approximation or shaping (in successive approximation or shaping, you gradually approach closer and closer to the defined appropriate behavior as you guide the child through the steps that more closely approximate the terminal, target behavior). Charting as we proceeded, we used shaping techniques to build motor imitation and gesturing, the meaning behind imitation, sentencing, and fingerspelling into Sheri's behavior. But first we taught Sheri the prerequisite behavior of waiting.

Prerequisite Behaviors

I cannot emphasize enough the importance and necessity of teaching good prerequisite behaviors before you get into the more complicated prelanguage and language development behaviors.

For example, the prerequisite behavior of sitting and waiting is an acceptable behavior, and it is certainly more appropriate than head banging. Sheri could not simultaneously hit herself and hold her hands together, so we felt that it was necessary to teach her to wait. Through the applications and techniques of differential reinforcement, she could and did learn to wait, and to do so very appropriately. You may be working with a child who bites himself or herself, who does a lot of light flicking or blindisms, or who performs rocking movements. All of these inappropriate behaviors are incompatible with sitting quietly and waiting upon command. The rationale, techniques, and procedures for teaching appropriate waiting behaviors to deaf-blind and other severely handicapped children are detailed elsewhere (Yarnall, 1975; 1976; 1977).

Motor Imitations

One of our primary goals was to teach Sheri seven gross motor movements (hands up over head, hands out in front, hands out to side, touch your toes, touch your head, touch your tummy, touch your knees) and eight fine motor movements (go, stop, sit (down), classroom (school), bathroom ("T"), finished eat, drink).

Happily, as Sheri learned the prerequisite behavior of waiting, she also learned to imitate some gross motor movements.

One of her first gestures was the one that we later used to represent the signal for the word go. Sheri was not able to make the more formal sign-language movements that represent go, so we made up a movement in which she would just swing her right arm out and up in front of her to represent the going motion. Using a pattern that I would later use in teaching the seven gross motor and eight fine motor movements, I worked with Sheri on the go signal. First, I took her hand and moved it through the entire sequence or movement to represent our sign for go. Then I prompted her or helped her to repeat that very same movement, immediately reinforcing her for imitating me or for permitting me to help her to model that specific movement for go.

Gradually--and I emphasize gradually--she began to understand and to imitate more independently; I began to use less and less prompting and to wait just a spilt second to give her the opportunity to respond. I wanted her to realize that she was to follow a given movement by repeating that movement and that she would receive my approval (reinforcement) for doing so. It took a few weeks for Sheri to model my behavior. Eventually, of her own volition (or independently), she began to imitate immediately whatever movement I would physically model for her. And gradually, through this very consistent and

laborious process, I was able to help this congenitally deaf-blind child produce good motor imitation control. As we proceeded formally to teach Sheri and other children the seven gross motor and eight fine motor skills that we had defined, we used the same procedures, and we made checklists of all the behaviors that were presented at each session.

A "Session" was the same in that every movement was presented five times each during the gross and also during fine motor movement teaching sessions. The seven gross and eight fine motor movements were presented in random order throughout the separate sessions. In Sheri's case, frequently we conducted the gross motor as well as the fine motor sessions at least twice each morning and twice each afternoon, especially during her first few weeks in school. Therefore, Sheri was doing gross motor sessions completing 35 (7x5) movements and fine motor movements of 40 (8x5) imitation movements. When she was participating in double sessions per half day, she was receiving prompting and differential reinforcement for repeating these various movements a total of seventy and eighty times each morning and each afternoon. It involved a lot of movements and a great deal of reinforcement.

Charting

One of my trainees in Louisiana added sophistication to our dimension of charting. She kept track of not only the incorrect and the independent (correct) responses, but she also charted the amount of prompting that she had to use with a child. With her chart (Figure 1), we were able to tell the

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Insert Figure 1 About Here

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number of sessions at a glance, the number of days, the number of prompts used, and to what extent children were gradually beginning to respond on their own. The children's data could tell us at what speed we should go. At one point with Sheri, for example, we noticed that we were going too fast. We liked to maintain an 80-100 percent success rate with each child, and one day Sheri suddenly fell down from above 80 percent to approximately 58 percent of positive responses. After looking at the project chart, the data immediately told me that we were going too fast and expecting too much too quickly. So we dropped back the number of new projects and expectations for Sheri until we were able to build her performance back up to a consistent 85-100 percent success rate.

We had been pushing Sheri too hard. On the other hand, I know that it's important to expect progress and not to go

too slowly. If you have children such as Sheri, don't stay with the same activity over and over and prompt continuously. Look for moments when the children begin to do an activity independently or of their own volition. Carefully monitor the data, and let the facts determine how fast you will go and how much prompting you will use. Be consistent in your sessions and the number of sequences per teaching session. The goal is to build independence in the child and consistency in your teaching of the child. If you are using a shaping (successive approximation) procedure, do not accept behaviors that are at a lower level than those that the child has thoroughly mastered. Despite a "Terrible Thursday" or a "Frustrating Friday" in the week, don't let yourself accept something less than what the child has already performed. Then, gradually and continually increase the expectations until you have that desired independent response on the part of the child.

Meaning

After Sheri learned to imitate the given gross-motor and fine-motor movements defined, we began to instill meaning into these "meaningless" motor movements. For example, after she had learned to imitate the movement designed to represent go, we used this movement throughout the day, throughout the classroom. I indicated to her the sign for finished and then

gave her the sign for go. Then I gave her the sign for bathroom. She, in turn, repeated my movements because she had learned to imitate or model motor movements. Soon she could repeat the movements and begin to trail the wall to the bathroom. After going to the bathroom, she trailed the walls back to the classroom. (We were also working on toileting and trailing projects.) Sheri learned to trail the wall and locate the classroom. When she found the specially marked classroom door, I had her make the sign for classroom. She imitated that sign, received reinforcement for it, and reached out and touched the particular classroom door that we had located. She began to associate the specific signs and the meanings for the sign school or classroom with the area in which she was doing school or classroom work.

With Sheri and her classmates, we used a sign for finished which was quite close to the formal sign for clean. We had all of the children brush their hands together to indicate when they were finished with a task. Sheri's progress was heartwarming. The behaviors she had learned were certainly different from and better than hitting herself in the head.

Sentencing -- At Last

Sheri's favorite activity was to swing in a large basket swing. We created our own sign for swing. We had her cup her

hands together and move them quite similarly to the sign we used for go. Often in the classroom we indicated that we were finished with something and that we would go and swing. We had her repeat those movements in proper grammatical, syntactic order, and then had her trail the wall until we got to the room where the swing was hanging. She located the swing, made the sign for swing, and then had the opportunity and privilege of climbing into the swing so that she could be pushed. She usually laughed and appeared to enjoy the swing.

After Sheri was in the classroom for approximately two-and-a-half months, a very significant series of events took place. One day, while I was working with Sheri on a pegboard, she suddenly took the pegboard, shoved it aside, made the sign for finished, slapped herself on the chest making the sign for I, followed this with the sign for go, and then followed this with the sign for swing. In admirable fashion and syntactic order, this child--for the first time in her life-- had emitted some spontaneous communication with beautiful meaning to it. She had said, "Finished. I go swing." Needless to say, we threw a party! Everyone was thrilled for this child who had come into the classroom with communication attempts classified as "emotional reactions." In two-and-a-half months she had reached the stage in which she could spontaneously and

correctly indicate to me that she was finished working that pegboard, and that she wanted to go and do her favorite activity ... and that she needed a reward.

Fingerspelling

Following Sheri's first sentence, I became enamored with the potential that was roused within this small child who was born both deaf and blind. I reasoned, "If the child can do this much, she might be much brighter than anyone thinks she is. So, we're going to try to teach this young child fingerspelling." It was very difficult for her, but I wanted her to be able to go beyond gesturing and signing and to use fingerspelling.

When I began working with her, I first reinforced her just for permitting me to manipulate her fingers and to move her hand. (By the way, this manipulation is something that many children will not allow immediately. You may need to go through a gradual process of reinforcing them for simply giving you the privilege or opportunity of touching them or manipulating their fingers.) Next, I moved her fingers to spell out the word ball, making the fingerspelling B-A-L-L. I would also have her feel my fingers as I would make the letters for B-A-L-L. Then, I guided her hands to locate a ball that was sitting in a small box right in front of her.

Initially, the only thing that was in the box was the ball. Next, I reinforced her when she touched the ball and picked it up. We went through this many, many times having her spell out B-A-L-L, search, reach for, locate, and pick up the ball. Then she received very strong primary and social reinforcements for doing this. By repeating the process over and over, and by ignoring incorrect responses if she failed to pick up the ball of if she picked up something else around the table, I was able to teach her simple labeling through fingerspelling. Through differential reinforcement she was able to know what the correct and incorrect behaviors were on her part following the fingerspelling of B-A-L-L. Next, we began to have her spell out the word cup. I further reasoned that, "The letter C is much different from the letter B, and going from a four letter B-A-L-L to a three letter C-U-P signal should facilitate the discrimination process." I then manipulated her fingers to fingerspell randomly B-A-L-L and C-U-P. I next required her to locate the item that represented the word she had just spelled. For the subsequent step, we added the word shoe to her fingerspelling repertoire. Throughout this entire teaching activity, each fingerspelling session comprised 20 total responses each session. Progress was slow and uncertain. Her degree of success per session ranged from 40 percent correct

At latest report, Sheri had continued in the program at Perkins and reportedly increased her signing and fingerspelling vocabulary into the hundreds; however, I am not certain regarding the status of her self-help skills, tantruming and headbanging, social, motor, or academic skills. Numerous other various teaching activities that were designed and implemented with Sheri are reported elsewhere (Yarnall, 1977).

This brief overview of a prelanguage program, that was developed for a low functioning, 7½-year-old, congenitally deaf-blind child, is written to be both stimulating and beneficial to parents, teachers, and other workers in the field. Educational projects similar to those mentioned here can be and have been conducted with many other severely, profoundly, and multiply disabled children.

to 100 percent correct. Some days all of her responses were correct. I spelled them in random order, and she located the correct item very quickly. But, I was not satisfied with her degree of responding, because it didn't reach a consistent 85 to 100 percent success and stay that way all the time. But, it was a tough task, and she did begin to learn fingerspelling.

Goal Accomplished...Mission Incomplete

My colleagues and I had succeeded, in several short months, to teach Sheri some basic prelanguage skills; she had been taught motor imitations, the meanings behind these imitations, gesturing, sentencing, and fingerspelling. Unfortunately, my time with Sheri ran out long before her potential to expand these skills did. I had planned to teach her to fingerspell her name using a backward chaining procedure. That is, I was going to teach her to make the letter I, and then use this as the terminal goal. Then, after she had learned this, I was going to teach her to spell R-I, then E-R-I, then H-E-R-I, and finally S-H-E-R-I. She would then have learned to fingerspell her name, and she would have learned to do this using what is called a backward chaining procedure.

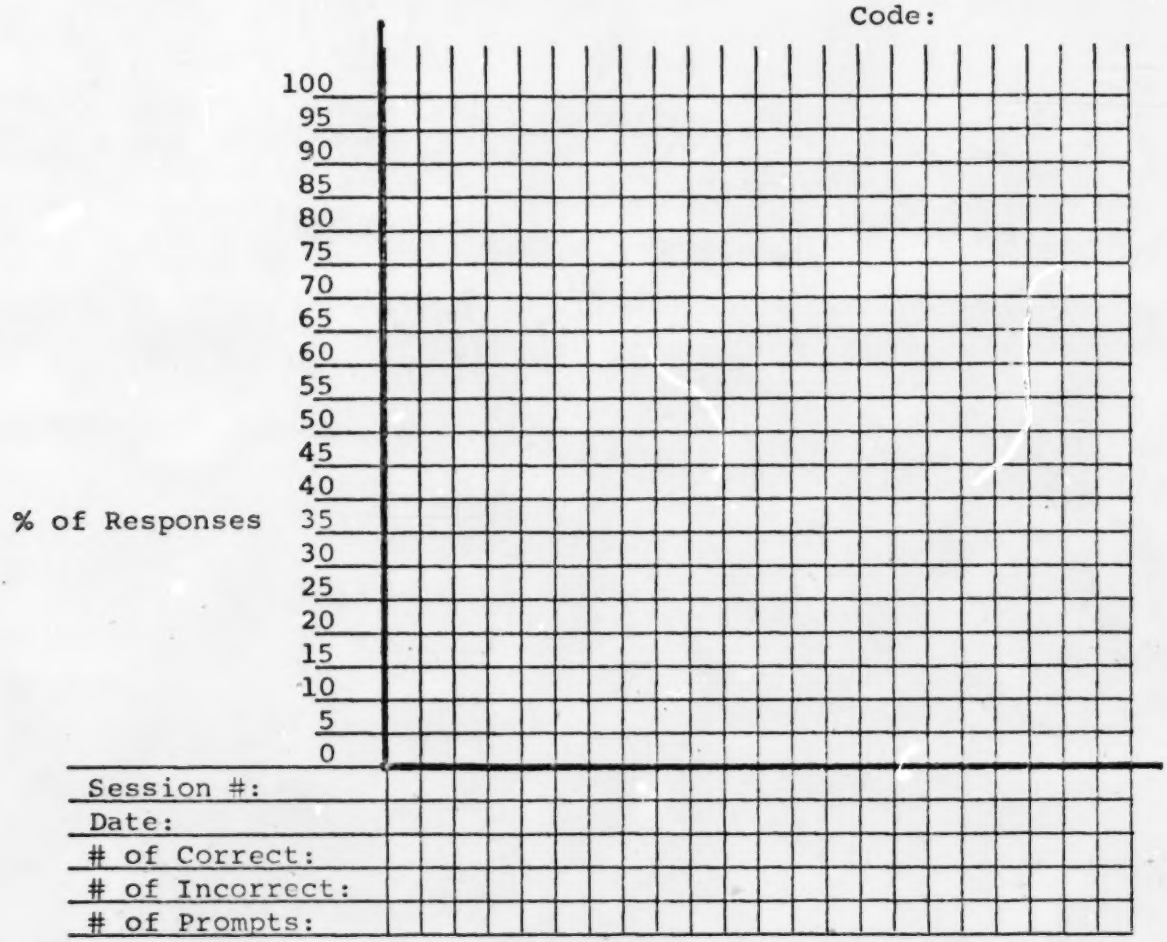
As time and the world would have it, I had to leave to return to graduate school and Sheri went home for the summer.

Figure 1

Sample Detailed Graph With Combined Data Sheet

Project Topic: Gross Motor Movement

Student:
Teacher:
Code:




Code: Correct = +; Incorrect = -; Prompted = P

Data Sheet:

| Session # | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arms out side | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arms out front | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arms over head | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Touch head | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Touch knees | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Touch tummy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Touch toes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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